

### CLAIM AMENDMENTS

1. (currently amended) A device that operates within a piconet, the device comprising:

a PHY (physical layer) that includes link quality intelligence gathering functionality;

a MAC (Medium Access Controller) that is directly coupled to the PHY; and wherein:

the link quality intelligence gathering functionality is operable to assess a plurality of operational parameters that corresponds to a PHY link that communicatively couples the PHY of the device to a PHY of at least one additional device within the piconet;

the PHY of the device is operable to provide assessed information corresponding to the plurality of operational parameters to the MAC;

the MAC processes the assessed information corresponding to the plurality of operational parameters; ~~and~~

based on the processed assessed information, the MAC modifies at least one operational parameter of the plurality of operational parameters;

the MAC directs the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a first subset of the plurality of operational parameters;

the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC;

the MAC processes the assessed information corresponding to the first plurality of operational parameters to the MAC; and

based on the processed assessed information corresponding to the first plurality of operational parameters to the MAC, the MAC directs the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a second subset of the plurality of operational parameters.

2. (previously amended) The device of claim 1, wherein:

the device maintains peer to peer communication with the at least one additional device.

3. (previously amended) The device of claim 1, wherein:  
 the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service;  
 the MAC provides the processed assessed information to the higher application layer; and  
 based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

4. (original) The device of claim 1, wherein:  
 the MAC directs the link quality intelligence gathering functionality of the PHY to assess the plurality of operational parameters.

5. (currently amended) The device of claim 1, wherein:  
~~the MAC directs the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a subset of the plurality of operational parameters;~~  
~~the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC;~~  
~~the MAC processes the assessed information corresponding to the first plurality of operational parameters to the MAC; and~~  
~~based on the processed assessed information corresponding to the first plurality of operational parameters to the MAC, the MAC directs the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a subset of the plurality of operational parameters~~  
the at least one additional device is a PNC (piconet coordinator); and  
the device is a DEV (user piconet device).

6. (currently amended) The device of claim 5, 1, wherein:  
the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

7. (currently amended) The device of claim 1, wherein:  
during a first time, the MAC directs the link quality intelligence gathering functionality of the PHY to assess ~~a~~ the first plurality of operational parameters that is ~~a~~ the first subset of the plurality of operational parameters; and  
during a second time, the MAC directs the link quality intelligence gathering functionality of the PHY to assess ~~a~~ the second plurality of operational parameters that is ~~a~~ the second subset of the plurality of operational parameters.

8. (original) The device of claim 7, wherein:  
the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

9. (previously amended)The device of claim 1, wherein:  
the at least one additional device is a PNC (piconet coordinator);  
the PHY of the at least one additional device is a PHY of the PNC;  
the device is a DEV (user piconet device);  
the PHY of the PNC includes link quality intelligence gathering functionality;  
the PNC includes a MAC that is directly coupled to the PHY of the PNC;  
the MAC of the PNC includes DEV direction functionality;  
the link quality intelligence gathering functionality of the PHY of the PNC assesses at least one additional plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC;  
the PHY of the PNC provides at least one additional assessed information corresponding to the at least one additional plurality of operational parameters to the MAC of the PNC;

the MAC of the PNC processes the at least one additional assessed information corresponding to the at least one additional plurality of operational parameters;

the DEV transmits information corresponding to the PHY link from the DEV to the PNC; and

based on the processed at least one additional assessed information and based on the information corresponding to the PHY link that is transmitted from the DEV to the PNC, the DEV direction functionality of the PNC's MAC directs the DEV to change at least operational parameter of the plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC.

10. (original) The device of claim 1, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to an interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

11. (original) The device of claim 1, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first TFC (time frequency code) that

directs the modulation of OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first TFC to a second TFC; and

the second TFC is subsequently used to direct modulation of OFDM symbols of the signal transmitted across the PHY link.

12. (original) The device of claim 1, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a distance between the device and the at least one additional device;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby determining the distance between the device and the at least one additional device;

based on a change in the distance between the device and the at least one additional device, the MAC changes the second operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

13. (previously amended)The device of claim 1, wherein:

the at least one additional device provides a registration request to the device when trying to register to the piconet; and

based on the processed assessed information, the MAC determines whether to accept or deny the registration request of the at least one additional device.

14. (original) The device of claim 1, wherein:  
an operational parameter of the plurality of operational parameters corresponds to at least one of:

- a distance between the device and the at least one additional device;
- a location of the device;
- a location of the at least one additional device;
- interference of a signal transmitted across the PHY link;
- a data rate employed for a signal transmitted across the PHY link;
- a QoS (Quality of Service) of the PHY link;
- a SNR (Signal to Noise Ratio) of a signal transmitted across the PHY link;
- a PN (Pseudo-Noise) code assigned to spread UWB (Ultra Wide Band) pulses of a signal transmitted across the PHY link;
- a power level of a signal transmitted across the PHY link;
- a code rate of a signal transmitted across the PHY link;
- a modulation that modulates a signal transmitted across the PHY link; and
- a TFC (time frequency code) that modulates OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link.

15. (original) The device of claim 1, wherein:  
the device is a PNC (piconet coordinator); and  
the at least one additional device is a DEV (user piconet device).

16. (currently amended) A device that operates within a piconet, the device comprising:

- a PHY (physical layer) that includes link quality intelligence gathering functionality that is operable to assess a plurality of operational parameters that

corresponds to a PHY link that communicatively couples the PHY of the device to a PHY of at least one additional device within the piconet; and

a MAC (Medium Access Controller) that is directly coupled to the PHY; and wherein:

~~the MAC directs the link quality intelligence gathering functionality of the PHY to operable to assess a plurality of operational parameters that corresponds to a PHY link that communicatively couples the PHY of the device to a PHY of at least one additional device within the piconet;~~

the PHY of the device is operable to provide assessed information corresponding to the plurality of operational parameters to the MAC;

the MAC processes the assessed information corresponding to the plurality of operational parameters; and

based on the processed assessed information, the MAC is operable to modify at least one operational parameter of the plurality of operational parameters;

the MAC directs the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a first subset of the plurality of operational parameters;

the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC;

the MAC processes the assessed information corresponding to the first plurality of operational parameters to the MAC; and

based on the processed assessed information corresponding to the first plurality of operational parameters to the MAC, the MAC directs the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a second subset of the plurality of operational parameters.

17. (original) The device of claim 16, wherein:

the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service;

the MAC provides the processed assessed information to the higher application layer; and

based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

18. (currently amended) The device of claim ~~17~~, 16, wherein:

~~the MAC directs the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a subset of the plurality of operational parameters;~~

~~the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC;~~

~~the MAC processes the assessed information; and~~

~~based on the processed assessed information, the MAC directs the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a subset of the plurality of operational parameters~~

the at least one additional device is a PNC (piconet coordinator); and

the device is a DEV (user piconet device).

19. (currently amended) The device of claim ~~18~~, 16, wherein:

the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

20. (currently amended) The device of claim 16, wherein:

during a first time, the MAC directs the link quality intelligence gathering functionality of the PHY to assess ~~a~~ the first plurality of operational parameters that is ~~a~~ the first subset of the plurality of operational parameters; and

during a second time, the MAC directs the link quality intelligence gathering functionality of the PHY to assess ~~a~~ the second plurality of operational parameters that is ~~a~~ the second subset of the plurality of operational parameters.

21. (original) The device of claim 20, wherein:



the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

22. (previously amended) The device of claim 16, wherein:

- the at least one additional device is a PNC (piconet coordinator);
- the PHY of the at least one additional device is a PHY of the PNC;
- the device is a DEV (user piconet device);
- the PHY of the PNC includes link quality intelligence gathering functionality;
- the PNC includes a MAC that is directly coupled to the PHY of the PNC;
- the MAC of the PNC includes DEV direction functionality;
- the link quality intelligence gathering functionality of the PHY of the PNC assesses at least one additional plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC;
- the PHY of the PNC provides at least one additional assessed information corresponding to the at least one additional plurality of operational parameters to the MAC of the PNC;
- the MAC of the PNC processes the at least one additional assessed information corresponding to the at least one additional plurality of operational parameters;
- the DEV transmits information corresponding to the PHY link from the DEV to the PNC; and
- based on the processed at least one additional assessed information and based on the information corresponding to the PHY link that is transmitted from the DEV to the PNC, the DEV direction functionality of the PNC's MAC directs the DEV to change at least operational parameter of the plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC.

23. (original) The device of claim 16, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to an interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

24. (original) The device of claim 16, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first TFC (time frequency code) that directs the modulation of OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first TFC to a second TFC; and

the second TFC is subsequently used to direct modulation of OFDM symbols of the signal transmitted across the PHY link.

25. (original) The device of claim 16, wherein:

- a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a distance between the device and the at least one additional device;
- a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;
- the MAC processes the assessed information corresponding to the second operational parameter thereby the distance between the device and the at least one additional device;
- based on a change in the distance between the device and the at least one additional device, the MAC changes the second operational parameter from the first modulation to a second modulation; and
- the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

26. (original) The device of claim 16, wherein:

- the MAC processes the assessed information corresponding to the plurality of operational parameters;
- the at least one additional device provides a registration request to the device when trying to register to the piconet; and
- based on the processed assessed information, the MAC determines whether to accept or deny the registration request of the at least one additional device.

27. (original) The device of claim 16, wherein:

- an operational parameter of the plurality of operational parameters corresponds to at least one of:
  - a distance between the device and the at least one additional device;
  - a location of the device;
  - a location of the at least one additional device;

interference of a signal transmitted across the PHY link;  
 a data rate employed for a signal transmitted across the PHY link;  
 a QoS (Quality of Service) of the PHY link;  
 a SNR (Signal to Noise Ratio) of a signal transmitted across the PHY link;  
 a PN (Pseudo-Noise) code assigned to spread UWB (Ultra Wide Band) pulses  
 of a signal transmitted across the PHY link;  
 a power level of a signal transmitted across the PHY link;  
 a code rate of a signal transmitted across the PHY link;  
 a modulation that modulates a signal transmitted across the PHY link; and  
 a TFC (time frequency code) that modulates OFDM (Orthogonal Frequency  
 Division Multiplexing) symbols of a signal transmitted across the PHY link.

28. (original) The device of claim 16, wherein:  
 the device is a PNC (piconet coordinator); and  
 the at least one additional device is a DEV (user piconet device).

29. (currently amended) A device that operates within a piconet, the device  
 comprising:

a PHY (physical layer) that includes link quality intelligence gathering  
 functionality; and

a MAC (Medium Access Controller) that is directly coupled to the PHY; and  
 wherein:

the link quality intelligence gathering functionality is operable to assess a  
 plurality of operational parameters that corresponds to a PHY link that  
 communicatively couples the PHY of the device to a PHY of at least one additional  
 device within the piconet;

the PHY of the device is operable to provide assessed information  
 corresponding to the plurality of operational parameters to the MAC;

during a first time, the MAC directs the link quality intelligence gathering  
 functionality of the PHY to assess a first plurality of operational parameters that is a  
first subset of the plurality of operational parameters;

during a second time, the MAC directs the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a second subset of the plurality of operational parameters;

the MAC processes at least one of assessed information corresponding to the first plurality of operational parameters and assessed information corresponding to the second plurality of operational parameters; and

based on the processed assessed information, the MAC modifies at least one operational parameter of at least one of the first plurality of operational parameters and the second plurality of operational parameters.

30. (original) The device of claim 29, wherein:  
the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

31. (previously amended)The device of claim 29, wherein:  
the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service;  
the MAC provides the processed assessed information to the higher application layer; and  
based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

32. (previously amended)The device of claim 29, wherein:  
the at least one additional device provides a registration request to the device when trying to register to the piconet; and  
based on the processed assessed information, the MAC determines whether to accept or deny the registration request of the at least one additional device.

33. (original) The device of claim 29, wherein:

an operational parameter of the plurality of operational parameters corresponds to at least one of:

- a distance between the device and the at least one additional device;
- a location of the device;
- a location of the at least one additional device;
- interference of a signal transmitted across the PHY link;
- a data rate employed for a signal transmitted across the PHY link;
- a QoS (Quality of Service) of the PHY link;
- a SNR (Signal to Noise Ratio) of a signal transmitted across the PHY link;
- a PN (Pseudo-Noise) code assigned to spread UWB (Ultra Wide Band) pulses of a signal transmitted across the PHY link;
- a power level of a signal transmitted across the PHY link;
- a code rate of a signal transmitted across the PHY link;
- a modulation that modulates a signal transmitted across the PHY link; and
- a TFC (time frequency code) that modulates OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link.

34. (original) The device of claim 29, wherein:  
 the device is a PNC (piconet coordinator); and  
 the at least one additional device is a DEV (user piconet device).

35. (currently amended) A method for providing link quality intelligence from a PHY (physical layer) to at least one higher protocol layer of a device that operates within a piconet, the method comprising:

within the PHY, employing link quality intelligence gathering functionality to assess ~~assessing~~ a plurality of operational parameters that corresponds to a PHY link that communicatively couples the PHY of the device to a PHY of at least one additional device within the piconet;

employing a MAC (Medium Access Controller) of the device to direct the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a first subset of the plurality of operational parameters

providing assessed information corresponding to the first plurality of operational parameters from the PHY to ~~a MAC (Medium Access Controller)~~ the MAC of the device;

employing the MAC to ~~assess~~ process information corresponding to the plurality of operational parameters;

based on the processed assessed information, employing the MAC to modify at least one operational parameter of the plurality of operational parameters;

based on the processed assessed information, employing the MAC of the device to direct the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a second subset of the plurality of operational parameters; and

wherein the MAC (Medium Access Controller) is directly coupled to the PHY.

36. (previously amended)The method of claim 35, wherein:

maintaining peer to peer communication between the device and the at least one additional device.

37. (previously amended)The method of claim 35, wherein:

the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service;

the MAC provides the processed assessed information to the higher application layer; and

based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

38. (currently amended) The method of claim 35, wherein:

~~the PHY includes link quality intelligence gathering functionality; and~~

~~the MAC directs the link quality intelligence gathering functionality of the PHY to assess the plurality of operational parameters~~

the device is a first DEV (user piconet device); and  
the at least one additional device is a second DEV.

39. (currently amended) The method of claim 35, wherein:  
~~the PHY includes link quality intelligence gathering functionality;~~  
~~the MAC directs the link quality intelligence gathering functionality of the~~  
~~PHY to assess a first plurality of operational parameters that is a subset of the plurality~~  
~~of operational parameters;~~  
~~the PHY of the device provides assessed information corresponding to the first~~  
~~plurality of operational parameters to the MAC;~~  
~~the MAC processes the assessed information; and~~  
~~based on the processed assessed information, the MAC directs the link quality~~  
~~intelligence gathering functionality of the PHY to assess a second plurality of~~  
~~operational parameters that is a subset of the plurality of operational parameters~~  
the at least one additional device is a PNC (piconet coordinator); and  
the device is a DEV (user piconet device).

40. (original) The method of claim 39, wherein:  
the first plurality of operational parameters and the second plurality of  
operational parameters include at least one common operational parameter.

41. (currently amended) The method of claim 35, wherein:  
~~the PHY includes link quality intelligence gathering functionality;~~  
during a first time, the MAC directs the link quality intelligence gathering  
functionality of the PHY to assess ~~a~~ the first plurality of operational parameters that is  
a the first subset of the plurality of operational parameters; and  
during a second time, the MAC directs the link quality intelligence gathering  
functionality of the PHY to assess ~~a~~ the second plurality of operational parameters that  
is a the second subset of the plurality of operational parameters.

42. (original) The method of claim 41, wherein:



the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

43. (previously amended) The method of claim 35, wherein:

- the at least one additional device is a PNC (piconet coordinator);
- the PHY of the at least one additional device is a PHY of the PNC;
- the device is a DEV (user piconet device);
- the PHY of the PNC includes link quality intelligence gathering functionality;
- the PNC includes a MAC that is directly coupled to the PHY of the PNC;
- the MAC of the PNC includes DEV direction functionality;
- the link quality intelligence gathering functionality of the PHY of the PNC assesses at least one additional plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the device to the PHY of the PNC;
- the PHY of the PNC provides at least one additional assessed information corresponding to the at least one additional plurality of operational parameters to the MAC of the PNC;
- the MAC of the PNC processes the at least one additional assessed information corresponding to the at least one additional plurality of operational parameters;
- the DEV transmits information corresponding to the PHY link from the DEV to the PNC; and
- based on the processed at least one additional assessed information and based on the information corresponding to the PHY link that is transmitted from the DEV to the PNC, the DEV direction functionality of the PNC's MAC directs the DEV to change at least operational parameter of the plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC.

44. (original) The method of claim 35, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to an interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

45. (original) The method of claim 35, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first TFC (time frequency code) that directs the modulation of OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first TFC to a second TFC; and

the second TFC is subsequently used to direct modulation of OFDM symbols of the signal transmitted across the PHY link.

46. (original) The method of claim 35, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a distance between the device and the at least one additional device;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby the distance between the device and the at least one additional device;

based on a change in the distance between the device and the at least one additional device, the MAC changes the second operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

47. (previously amended)The method of claim 35, wherein:

the at least one additional device provides a registration request to the device when trying to register to the piconet; and

based on the processed assessed information, the MAC determines whether to accept or deny the registration request of the at least one additional device.

48. (original) The method of claim 35, wherein:

an operational parameter of the plurality of operational parameters corresponds to at least one of:

a distance between the device and the at least one additional device;

a location of the device;

a location of the at least one additional device;

interference of a signal transmitted across the PHY link;

a data rate employed for a signal transmitted across the PHY link;

- a QoS (Quality of Service) of the PHY link;
- a SNR (Signal to Noise Ratio) of a signal transmitted across the PHY link;
- a PN (Pseudo-Noise) code assigned to spread UWB (Ultra Wide Band) pulses of a signal transmitted across the PHY link;
- a power level of a signal transmitted across the PHY link;
- a code rate of a signal transmitted across the PHY link;
- a modulation that modulates a signal transmitted across the PHY link; and
- a TFC (time frequency code) that modulates OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link.

49. (original) The method of claim 35, wherein:

- the device is a PNC (piconet coordinator); and
- the at least one additional device is a DEV (user piconet device).

50. (currently amended) A method for providing link quality intelligence from a PHY (physical layer) to at least one higher protocol layer of a device that operates within a piconet, the method comprising:

- within the PHY, assessing a plurality of operational parameters that corresponds to a PHY link that communicatively couples the PHY of the device to a PHY of at least one additional device within the piconet;

- providing assessed information corresponding to the plurality of operational parameters from the PHY to a MAC (Medium Access Controller) of the device, wherein the MAC is directly coupled to the PHY;

- employing the MAC to process the assessed information corresponding to the plurality of operational parameters;

- based on the processed assessed information, employing the MAC to modify at least one operational parameter of the plurality of operational parameters; and
- wherein:

- the PHY includes link quality intelligence gathering functionality;

during a first time, employing the MAC to direct the link quality intelligence gathering functionality of the PHY to assess a first plurality of operational parameters that is a first subset of the plurality of operational parameters;

during a second time, based on the processed assessed information corresponding to the first plurality of operational parameters to the MAC, employing the MAC to direct the link quality intelligence gathering functionality of the PHY to assess a second plurality of operational parameters that is a second subset of the plurality of operational parameters; and

the first plurality of operational parameters and the second plurality of operational parameters include at least one common operational parameter.

51. (previously amended)The method of claim 50, wherein:

the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service;

the MAC provides the processed assessed information to the higher application layer; and

based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

52. (original) The method of claim 50, wherein:

the PHY includes link quality intelligence gathering functionality; and

the MAC directs the link quality intelligence gathering functionality of the PHY to assess the plurality of operational parameters.

53-54. (canceled)

55. (previously amended)The method of claim 50, wherein:

maintaining peer to peer communication between the device and the at least one additional device.

56. (previously amended) The method of claim 55, wherein:  
the communication device is a DEV (user piconet device); and  
the at least one additional device is a DEV.

57. (original) The method of claim 50, wherein:  
the at least one additional device is a PNC (piconet coordinator);  
the PHY of the at least one additional device is a PHY of the PNC;  
the device is a DEV (user piconet device);  
the PHY of the PNC includes link quality intelligence gathering functionality;  
the PNC includes a MAC that is communicatively coupled to the PHY of the PNC;  
the MAC of the PNC includes DEV direction functionality;  
the link quality intelligence gathering functionality of the PHY of the PNC assesses at least one additional plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC;  
the PHY of the PNC provides at least one additional assessed information corresponding to the at least one additional plurality of operational parameters to the MAC of the PNC;  
the MAC of the PNC processes the at least one additional assessed information corresponding to the at least one additional plurality of operational parameters;  
the DEV transmits information corresponding to the PHY link from the DEV to the PNC; and  
based on the processed at least one additional assessed information and based on the information corresponding to the PHY link that is transmitted from the DEV to the PNC, the DEV direction functionality of the PNC's MAC directs the DEV to change at least operational parameter of the plurality of operational parameters that corresponds to the PHY link that communicatively couples the PHY of the DEV to the PHY of the PNC.

58. (original) The method of claim 50, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to an interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

59. (original) The method of claim 50, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first TFC (time frequency code) that directs the modulation of OFDM (Orthogonal Frequency Division Multiplexing) symbols of a signal transmitted across the PHY link;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to interference of the signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby monitoring the interference of the signal transmitted across the PHY link;

based on a change in the interference of the signal transmitted across the PHY link, the MAC changes the first operational parameter from the first TFC to a second TFC; and

the second TFC is subsequently used to direct modulation of OFDM symbols of the signal transmitted across the PHY link.

60. (original) The method of claim 50, wherein:

a first operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a distance between the device and the at least one additional device;

a second operational parameter of the plurality of operational parameters that corresponds to the PHY link corresponds to a first modulation used to modulate a signal transmitted across the PHY link;

the MAC processes the assessed information corresponding to the second operational parameter thereby the distance between the device and the at least one additional device;

based on a change in the distance between the device and the at least one additional device, the MAC changes the second operational parameter from the first modulation to a second modulation; and

the second modulation is subsequently used to modulate the signal transmitted across the PHY link.

61. (previously amended) The method of claim 50, wherein:

the at least one additional device provides a registration request to the device when trying to register to the piconet; and

based on the processed assessed information, the MAC determines whether to accept or deny the registration request of the at least one additional device.

62. (original) The method of claim 50, wherein:

an operational parameter of the plurality of operational parameters corresponds to at least one of:

a distance between the device and the at least one additional device;

a location of the device;

a location of the at least one additional device;



interference of a signal transmitted across the PHY link;  
 a data rate employed for a signal transmitted across the PHY link;  
 a QoS (Quality of Service) of the PHY link;  
 a SNR (Signal to Noise Ratio) of a signal transmitted across the PHY link;  
 a PN (Pseudo-Noise) code assigned to spread UWB (Ultra Wide Band) pulses  
 of a signal transmitted across the PHY link;  
 a power level of a signal transmitted across the PHY link;  
 a code rate of a signal transmitted across the PHY link;  
 a modulation that modulates a signal transmitted across the PHY link; and  
 a TFC (time frequency code) that modulates OFDM (Orthogonal Frequency  
 Division Multiplexing) symbols of a signal transmitted across the PHY link.

63. (original) The method of claim 50, wherein:  
 the device is a PNC (piconet coordinator); and  
 the at least one additional device is a DEV (user piconet device).